

FREE SPACE DUPLEXED OPTICAL COMMUNICATION WITH
TRANSMITTER END MULTIPLEXING AND
RECEIVER END AMPLIFICATION
ABSTRACT OF THE INVENTION

A free space wavelength duplexed system includes first and second terminals. The first terminal includes an optical transmitter and an optical receiver. The optical receiver has a telescope, an optical to electrical converter and an optical amplifier coupled between the telescope and the optical to electrical converter. A method includes the steps of receiving a received optical signal through a telescope, diverting the received optical signal in an optical duplexer into an optical amplifier, and transmitting a transmit optical signal through the optical duplexer to the telescope. Another method includes the steps of receiving plural received optical signals through a telescope, diverting the plural received optical signals in an optical duplexer into an optical amplifier, separating the plural amplified optical signals by wavelength, and transmitting plural transmit optical signals at distinct wavelengths through the optical duplexer to the telescope.